



## Scaffolding mobile-assisted extensive reading: A sociocultural case study of Chinese Non-English majors

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### ABSTRACT

#### Article History

Received: 2 June 2025

Revised: 21 October 2025

Accepted: 26 November 2025

Published: 30 December 2025

#### Keywords

EFL

MAER

SCT

Social

Scaffolding

ZPD.

This study investigates how Chinese non-English majors engage in Mobile-Assisted Extensive Reading (MAER) within both academic and social contexts, drawing on Sociocultural Theory (SCT) as the analytical framework. Employing a qualitative case study approach, data were collected from six university students through semi-structured interviews, reading logs, and mobile app screenshots. The findings reveal that students' MAER practices are highly diverse and contextually situated, influenced by individual learning goals, exam preparation demands, and the availability of social and institutional support. Mobile reading apps provide flexible access to English input and offer multimodal resources that enhance learner interest and autonomy. However, sustained engagement is not guaranteed by technology alone. Learners benefit most when supported by peer collaboration, teacher scaffolding, and app features that facilitate reflection and interaction. In contrast, participants lacking such support often experience difficulty in maintaining consistent reading habits. These results suggest that MAER is not merely a solitary or technical endeavor, but rather a socially mediated activity shaped by the learners' environments. The study extends current understandings of mobile learning by illustrating how the core SCT constructs of mediation, the zone of proximal development (ZPD), and internalization operate in mobile-assisted reading contexts. Pedagogical implications include integrating social scaffolding into both app design and curriculum development to foster sustained learner motivation, self-regulation, and effective engagement with extensive reading tasks.

**Contribution/Originality:** This study is one of the few studies that have investigated MAER through the lens of Sociocultural Theory, contributing to the existing literature by illustrating how peer and teacher scaffolding within learners' ZPD sustains engagement and supports meaningful reading development.

## 1. INTRODUCTION

### 1.1. Background and Context

In recent years, mobile-assisted language learning (MALL) has gained increasing prominence in English as a Foreign Language (EFL) instruction, particularly in China, where smartphone penetration among university students exceeds 98% (China Internet Network Information Center, 2023). The widespread availability of mobile devices and language-learning apps has made digital learning more accessible and flexible, enabling learners to engage with English outside the confines of traditional classrooms (Liu, Tao, & Cain, 2016). Among various MALL practices,

mobile-assisted extensive reading (MAER), the use of mobile devices to read large volumes of texts for general understanding has drawn growing interest due to its potential to promote vocabulary recognition and enhance reading proficiency (Wang, Yuizono, Wang, Kim, & Lu, 2023).

In response to broader educational reforms, the Chinese Ministry of Education has issued a series of policy initiatives most notably *Education Informatization 2.0*, which advocate the integration of digital technologies into higher education to promote student-centered pedagogy and improve digital literacy (Ministry of Education of the People's Republic of China, 2023). However, a persistent gap remains between these policy aspirations and actual classroom practice (Liu, Li, Feng, Chen, & Zhang, 2023), particularly in English reading instruction. This discrepancy underscores the need for further research and sustained support in effectively integrating information and communication technologies (ICT) into English reading instruction for non-English majors.

These students constitute over 70% of China's undergraduate population (Ministry of Education of the People's Republic of China, 2023), yet often lack the intrinsic motivation and institutional support required for sustained engagement in English reading (Li, Fan, & Wang, 2022). They typically face considerable challenges in developing effective English reading habits beyond the classroom. Many rely heavily on teacher-directed instruction and rarely participate in autonomous or interest-driven reading. The dominance of traditional, exam-oriented teaching models may further constrain their opportunities to engage in meaningful, self-directed language learning (Wen, 2015). As a result, even with access to advanced mobile technologies, these learners may struggle to make productive use of MAER without adequate motivation, guidance, and social support.

While mobile tools provide convenience and access to diverse, authentic reading materials, their pedagogical value depends not only on technological affordances but also on the social contexts in which learners operate (Wang & Gunaban, 2023). Learners' MAER experiences are shaped by a range of factors, including peer influence, teacher feedback, and institutional support structures. As mobile reading becomes more embedded in university-level English instruction and extracurricular learning, it is crucial to understand how students manage these experiences, how they navigate obstacles, seek or receive support, and develop reading practices through both individual and socially mediated activity.

### 1.2. Problem Statement

Although previous studies have shown that MAER can improve reading fluency, much of the existing research has approached the topic from cognitive or technological perspectives, focusing on vocabulary gains, app usability, or learner motivation (e.g., Hendriwanto & Kurniati, 2019; Lin, 2014). While these studies provide valuable insights, they often overlook the sociocultural dimensions that influence students' engagement with MAER dimensions that are particularly salient in collectivist educational contexts such as China, where peer influence, teacher authority, and institutional norms significantly shape learning behaviors (Liu et al., 2023).

In particular, little is known about how interpersonal dynamics such as peer collaboration and teacher guidance affect learners' persistence in MAER activities. Non-English majors may not receive the same level of structured support as their English-major counterparts and may struggle with issues such as lack of peer accountability, unclear reading goals, or low perceived relevance of reading tasks to their academic or professional futures. These challenges reflect not only individual motivational deficits but also broader sociocultural constraints. These social dimensions are central to Sociocultural Theory (SCT), which emphasizes the role of mediation and scaffolding in learning (Vygotsky, 1978). From this perspective, language learning is not a purely individual cognitive activity but a socially situated process shaped by cultural tools, interpersonal relationships, and institutional structure (Hsu, 2012).

### 1.3. Purpose and Research Questions

Guided by Sociocultural Theory, this study aims to explore how Chinese non-English majors experience mobile-assisted extensive reading in their academic and social contexts. It investigates how learners interact with mobile

reading tools, what sociocultural challenges they encounter, and what forms of support they find most beneficial. Specifically, the study seeks to answer the following research questions:

RQ 1. How do non-English majors engage with MAER in their academic and social environments?

RQ 2. What sociocultural challenges do they face in sustaining MAER engagement?

RQ 3. What types of support (peer, teacher, technological) do students perceive as helpful in their MAER experiences?

## 2. LITERATURE REVIEW

### 2.1. *Mobile-Assisted Extensive Reading in EFL Contexts*

MAER combines the principles of ER with the affordances of mobile technology. Defined by Lin (2014) as using mobile devices for large-volume English reading focused on general comprehension, MAER builds on ER's benefits such as learner autonomy, reading for pleasure, and authentic input exposure (Day & Bamford, 1998).

Three features distinguish MAER from conventional ER. First, mobile devices enable flexible reading across time and space, including during commutes or breaks (Yu, Zhou, Yang, & Hu, 2022). Second, mobile platforms support multimodal formats text, audio, and video enhancing comprehension and accommodating diverse preferences (Wang & Gunaban, 2023). Third, functions like instant dictionaries and personalized dashboards scaffold autonomous learning (Kan & Tang, 2020).

Research shows MAER effectively improves English learning. Chang and Millett (2015) found it enhances reading fluency and vocabulary. Hsu, Hwang, Chang, and Chang (2013) reported better comprehension of real-world texts, while (Wang & Gunaban, 2023) noted both language gains and increased student motivation.

However, much of the existing research emphasizes cognitive and technical outcomes, such as test scores or app usability, while overlooking sociocultural factors. Few studies explore how peer or teacher interaction, or institutional policies, shape mobile reading persistence. In exam-driven, collectivist contexts like China, such factors likely mediate MAER engagement (Liu et al., 2023). A sociocultural lens is necessary to understand how learners navigate the broader ecosystems that support or hinder their mobile reading.

### 2.2. *Sociocultural Theory as a Lens for Language Learning*

SCT, rooted in the work of Vygotsky (1978), offers a robust theoretical framework for understanding EFL learning as a socially mediated and culturally situated process. According to SCT, human cognition develops through mediation, whereby cultural tools, signs, and interaction with more knowledgeable others facilitate the internalization of new knowledge and skills (Donato & MacCormick, 1994). In EFL contexts, these mediating factors may include teacher scaffolding, peer collaboration, instructional materials, and increasingly, technological tools (Turuk, 2008).

Three central concepts underpin SCT: mediation, the zone of proximal development (ZPD), and internalization (Vygotsky, 1978). Mediation emphasizes the role of both symbolic and material tools such as language, texts, and digital devices in shaping cognitive processes (Donato & MacCormick, 1994). ZPD refers to the developmental space between what learners can do independently and what they can achieve with guidance, highlighting the importance of collaborative learning and scaffolding (Liang, 2013). Internalization denotes the transformation of externally supported activities into internal cognitive capabilities (Salomon, 1997).

SCT has been instrumental in examining how EFL learners co-construct meaning, negotiate language use, and gradually assume autonomy through socially embedded learning activities (Donato & MacCormick, 1994). Research has shown that classroom discourse, peer interaction, and teacher support are critical in enabling learners to progress within their ZPD (Turuk, 2008). Collins, Brown, and Newman (1989) advocate for instructional practices that make cognitive processes visible, arguing that reading strategies and other linguistic tools are best learned through active engagement rather than passive exposure. This view aligns closely with a core principle of SCT: knowledge is internalized through meaningful participation in socially mediated activities. By emphasizing the role of practical

application and interaction, this approach reinforces the idea that cognitive development in language learning is deeply embedded in social contexts.

### 2.3. *Toward a Sociocultural Understanding of MAER*

SCT has recently been applied to EFL learning in digitally mediated environments, where mobile and online tools serve not only as sources of linguistic input but also as platforms for collaboration, feedback, and mediated learning (Chen, 2019). In MALL, mediation extends beyond human interaction to include technological tools such as reading apps, discussion forums, and translation platforms. These tools support learners by enabling access to authentic content, facilitating interaction, and offering immediate feedback (Antón, 1999).

The concept of the ZPD remains highly relevant in mobile contexts. Learners can receive timely guidance from peers or instructors through digital channels such as messaging apps or collaborative reading tasks, promoting the internalization of reading strategies over time (Collins et al., 1989). Together, these insights highlight the significance of SCT in understanding how digital tools and social interaction jointly shape learner engagement in mobile-assisted EFL environments.

While existing research has highlighted the cognitive and linguistic benefits of MAER, its sociocultural dimensions remain underexplored. Most studies adopt an individualistic and technologically deterministic lens, emphasizing measurable outcomes such as reading speed or vocabulary growth. In contrast, a sociocultural perspective views MAER as a socially situated activity, shaped by learners' interactions with peers, teachers, and broader institutional contexts (Liu et al., 2023). To address this gap, the present study adopts a sociocultural lens to examine how technological tools and human support jointly influence learners' engagement in mobile English reading. This ecological perspective provides a more nuanced understanding of learner behavior and offers insights for designing contextually grounded pedagogical interventions.

## 3. METHODOLOGY

### 3.1. *Research Design*

This study employed a qualitative case study design to explore how Chinese non-English majors engage in MAER in their academic and social environments. The case is bounded by three criteria: (1) participants' identity as non-English majors in a Chinese university, (2) their autonomous or semi-structured use of mobile devices for English reading, and (3) the institutional and cultural context in which such practices unfold.

The research is conceptually grounded in three key constructs of SCT: mediation (through mobile reading apps and peer/teacher interaction), the ZPD (support received during reading), and internalization (development of autonomous reading habits). These constructs informed the design of interview questions, guided the thematic coding of learner narratives, and structured the interpretation of the data. By drawing on SCT in this way, the study aims to uncover how mobile reading behaviors are co-constructed within a sociocultural ecosystem, rather than being solely shaped by individual motivation or technology use.

### 3.2. *Participants*

Six undergraduate students (aged 18–21) from Hebei University of Economics and Business (HUEB) in northern China participated in the study. A provincial public university established in 1953, HUEB specializes in economics, management, and applied interdisciplinary research, with over 20,000 students enrolled across 52 undergraduate and 10 master's programs. The institution emphasizes practical learning and hosts key research centers in regional economics, industrial policy, and business analytics, reflecting its focus on socially relevant education. The participants, all non-English majors without prior formal training in MAER, reported regularly using mobile devices to engage with English content including news, novels, social media, and exam materials. Their self-directed use of

mobile technology for language input, combined with HUEB's applied academic environment, offered a naturalistic context for investigating MAER in real-world higher education settings.

Participants were selected through purposive sampling to reflect a range of English proficiency levels and motivational orientations. The approximate CEFR levels associated with College English Test-Band 4 (CET-4), College English Test-Band 6 (CET-6), and the English component of China's National Graduate Entrance Examination (NCEE) were determined based on the calibration work in Zhao and Coniam (2022), which aligned national English assessments in China with CEFR levels through empirical validation. The six participants are categorized as follows (see Table 1).

**Table 1.** Participants' profile.

Participant	Highest English test taken/ Preparing for	Approx. CEFR level	Current reading orientation
P1 (Male)	Preparing for CET-4	A2	Aiming to meet the university's basic English requirement.
P2 (Female)	Preparing for CET-4	A2	Aiming to meet university's basic English requirement
P3 (Female)	Passed CET-4; preparing for NCEE	B1-B2	Seeking higher-level academic reading proficiency
P4 (Female)	Passed CET-4	B1	Reading casually for personal interest.
P5 (Female)	Passed CET-6; preparing for IELTS	B2-C1	Linking reading engagement to anticipated study-abroad language requirements
P6 (Male)	Passed CET-6; preparing for TOEFL	B2-C1	Linking reading engagement to anticipated study-abroad language requirements

All participants used smartphones as their primary tools for English reading and were familiar with a range of mobile apps, including WeRead, Youdao Dictionary, and WeChat Official Accounts offering English-language content.

### 3.3. Data Collection

To ensure a comprehensive view of participants' MAER experiences, data were collected from three complementary sources:

Semi-structured interviews: Each participant took part in two rounds of individual interviews (30–45 minutes each). The first round addressed general reading habits and initial challenges, while the second round explored forms of social or technological support and motivational changes over time; reading logs: Participants completed weekly logs for four consecutive weeks, recording reading duration, content types, and reflections on their engagement and comprehension; optional app screenshots: Participants were invited to submit screenshots capturing how they used reading apps (e.g., highlighted content, dictionary functions, or group features).

All interviews were conducted in Chinese, audio-recorded with permission, and transcribed for analysis. Reading logs and screenshots were anonymized. Ethical approval was obtained from the university's ethics committee, and all participants signed informed consent forms.

### 3.4. Data Analysis

Data were analyzed using thematic analysis, following the six-phase approach (Braun & Clarke, 2006). After familiarization and initial coding, categories were refined and interpreted through the lens of SCT. Key themes reflected learners' use of tools and strategies (mediation), reliance on peer or teacher guidance (ZPD), progression toward independent reading (internalization), and challenges posed by institutional or personal constraints.

A theory-informed coding framework was developed iteratively and applied across interview transcripts, reading logs, and screenshot annotations to ensure analytical depth and cross-validation.

## 4. FINDINGS AND DISCUSSION

### 4.1. Theme 1: Diverse Patterns of MAER Engagement in Daily Life

The study found that MAER practices among Chinese non-English majors were highly diverse, influenced by each learner's academic goals, personal interests, available time, and technological preferences.

Participants adapted their reading behaviors to fit into fragmented routines, using a variety of mobile apps including news apps, test-prep platforms, bilingual reading apps, and e-books. While some learners developed highly structured, goal-driven routines, others relied more on spontaneous or interest-based engagement, often with minimal external guidance. The interplay between learner agency, tool mediation, and sociocultural environment led to distinctive patterns of mobile reading behavior.

#### 4.1.1. Multimodal Mediation and Goal-Oriented Reading

Participants preparing for standardized exams, such as CET-4, IELTS, or TOEFL, often relied on multimodal input texts paired with audio or interactive feedback to increase efficiency. P1, for instance, used the China Daily app each morning.

"I usually read China Daily in the morning with earphones... like, I read and listen at the same time. It helps me get used to CET-4 listening style. The accent, the speed... It's like killing two birds with one stone." (P1)

His engagement reflects the principle of multimodal mediation in Sociocultural Theory (SCT): the mobile app becomes a tool that supports language acquisition through simultaneous visual and auditory channels. This dual-channel input seemed to help him internalize key linguistic features vocabulary, sentence structure, and tone—more effectively than isolated reading. He added:

"Sometimes I repeat the same article two or three times. The first time, I don't understand much, but then it gets clearer. I guess it's like training your brain muscles?"

Similarly, P3, who was preparing for the postgraduate entrance exam, used the website which offers the previous tests for both extensive and intensive reading:

"It's not really for fun reading... but when I read the same topic again in different formats, it sticks. The site provides original English passages and Chinese explanations, so I can test myself."

Her approach was more examination-oriented but still displayed signs of learner control. She customized her use of digital tools according to her cognitive needs, switching between English-only mode and bilingual mode depending on her mental fatigue.

#### 4.1.2. Interest-Driven but Unstructured Reading

In contrast to goal-driven users, participants like P4 displayed interest-based engagement with minimal external structure. She frequently read fiction on iBooks.

"I love Harry Potter, but... I sometimes forget to read for days. There's no one to remind me or, like, ask what I read. It's just me and the app."

Her reading was deeply personal and emotionally motivated. P4 even shared screenshots of highlighted passages and described how she felt while reading:

When I read about Hermione being so smart, I felt inspired. But the thing is, I don't treat it like 'study'. So sometimes I skip days, then come back again. It depends on my mood.

Although her reading lacked consistency, it still fostered emotional investment and identity formation (as discussed in 4.3). However, the absence of external accountability or social scaffolding meant that her progress depended entirely on intrinsic motivation, which fluctuated based on her mental state or academic pressure.

"If I have a big test, I stop reading completely. I know it's good for me, but it's hard to balance. No one tells me to continue."

P2 echoed a similar pattern, using the Shanbay Reading app in an interest-driven but irregular manner:



"I like the articles there. They are short and kind of fun. But to be honest, I don't finish them every day. Sometimes I just open the app and then get distracted."

Her description points to an important issue in MAER: while mobile apps can offer appealing content, they often fail to maintain user engagement without built-in social accountability mechanisms.

#### 4.1.3. *Reading in Micro-Moments*

Another distinct pattern emerged among learners who engaged in what may be called "micro-reading" short bursts of mobile reading during idle moments. P6, for instance, used a TOEFL Reading WeChat mini-program during commutes and breaks.

"I just open it when I wait at the bus stop. It's short but useful, and I get instant scores... it's better than wasting time on social media."

He emphasized the practicality of this method:

"The texts are not too long. I feel like, even if I read for 5 minutes, I gain something. That makes me want to keep going."

The app's design small chunks of content, immediate feedback, and gamified scoring aligned well with his learning needs. Over time, this "snack reading" evolved into a sustainable routine:

"Now I open it even at night, before bed. It's become a habit. Not too heavy, not too light."

P5 also engaged in micro-reading but in a different context. As an IELTS candidate, she used the IELTS Bro app, where peers can share articles and vocabulary lists.

"Sometimes I just skim the article on the subway and save the new words to notes app. I don't always read everything deeply, but it's still useful."

Her practice was fragmented but still cognitively meaningful. These micro-reading episodes though short helped her build familiarity with diverse topics and lexical items. This "everyday integration" of MAER into spare moments reflects learners' agency in managing limited time and attention spans.

#### 4.1.4. *Tool Choice Based on Emotional Comfort*

Interestingly, participants often chose their reading tools not only based on utility but also on how the interface "felt." For example, P2 described preferring Shanbay over articles on websites because of the design.

"The font is clean, and it shows me a progress bar. I don't know why, but it makes me feel calm. The articles on the websites feel messy, with too many ads and pop-ups. It is quite difficult to adjust the font of the words."

P4 said she liked reading on iBooks because it made her "feel like a real reader":

It looks like a book. I can highlight, change the color... Sometimes I even pretend I'm reading a real paperback. The app has this cool page-turning animation that makes me feel like I'm flipping through a real book. Every time I finish a page and swipe to the next one, it gives me this little boost of accomplishment. Plus, the tan paper-like background color just fits perfectly with the mysterious story it honestly makes me feel like I'm part of the magical world too!

These statements indicate that emotional and aesthetic responses to app design may influence sustained reading behavior. Although such preferences might appear superficial, they contribute to determining whether learners maintain long-term engagement with mobile reading.

#### 4.1.5. *Negotiating Between Leisure and Learning*

Several participants described a constant tension between viewing mobile reading as "study" or "relaxation." P2 said:

"Sometimes I just want to read for fun, but when I open the app, I see vocabulary tests or reading scores... It stresses me out. So, I switch to Xiaohongshu (one of the most popular social media platforms in China) instead."

This quote illustrates how even well-designed tools may unintentionally introduce anxiety if learners feel pressured by embedded assessment features. In contrast, P4 appreciated that iBooks didn't have any "reminder functions".

There are no pop-ups saying 'You missed your goal'... I can just enjoy reading without guilt.

These contrasting attitudes highlight the delicate balance learners try to maintain between accountability and autonomy in their MAER practices.

In summary, the diverse ways in which participants engaged with MAER reflect a wide range of personal goals, app functionalities, and contextual conditions. As shown in Table 2, some learners such as P1, P2, and P3 adopted a more structured or goal-oriented approach, using apps specifically aligned with high-stakes exams like CET-4 and the postgraduate entrance exam. Their reading behaviors were driven by external assessments and often mediated through multimodal features (e.g., audio + text) or repeated exposure to test-like materials. In contrast, learners like P4 followed an interest-driven but less consistent pattern, showing a strong preference for fiction and intrinsic motivation, yet often lacking scaffolding to maintain regular reading habits. Meanwhile, P5 and P6 exemplified hybrid forms of engagement, where mobile tools supported both social interaction and routine building. These learners leveraged community spaces and fragmented time to transform reading from a task into a habit. This thematic diversity illustrates how MAER practices are shaped by learners' sociocultural contexts, perceived needs, and the mediational potential of the tools they use.

**Table 2.** Typology of MAER engagement patterns.

Participant	App/Tool used	Purpose	Engagement style	Quotes/Notes
P1	China daily	CET-4 preparation	Structured, multimodal, exam-driven	"I read and listen at the same time... It's like training your brain muscles."
P2	Shanbay reading	CET-4 preparation	Semi-structured, inconsistent	"The app reminds me, but I often just swipe it away... No one really checks."
P3	Previous tests Websites	Postgrad exam prep	Goal-oriented, strategic	"When I read the same topic again and again, it finally sticks."
P4	iBooks	Casual reading	Unstructured, mood-dependent	"Sometimes I forget to read for days... depends on my mood."
P5	IELTS Bro + in-app social forum	IELTS preparation	Social, reflective, habit-forming	"I started just reading, but now I share summaries... even if no one replies."
P6	TOEFL WeChat mini-program	TOEFL prep	Micro-learning, time-efficient	"Even five minutes at the bus stop... I feel I gain something."

#### 4.2. Theme 2: Sociocultural Barriers to Sustained Engagement

While mobile tools offered flexible access and multimodal input, many participants struggled with sustaining MAER over time due to various sociocultural barriers. These included the absence of meaningful social interaction, weak motivational infrastructure, and the marginalization of extensive reading in formal academic settings.

##### 4.2.1. App Notifications vs. Human Accountability

Several participants highlighted the challenge of staying motivated when their only prompt to read came from app notifications. As P2 put it:

Shanbay reminds me every day. You get this little 'It's time to read!' thing. But I always swipe it. I feel nothing... It's not like when a teacher asks you next class, 'Did you do the reading?' No matter how the app threatens me, I know it can't do anything to me if I didn't follow its timetable. It's totally different from the assignment of a compulsory course.

This response underscores a critical SCT point: tools alone without human scaffolding lack the social pressure and emotional presence that often drive accountability. For learners like P2, the absence of a real human presence within the ZPD led to disengagement. She later added:



"Sometimes I open the app and just scroll through. Not really reading. I mark it as done, though. Just to feel less guilty. It's like cheating the app."

Here, the interaction becomes performative rather than meaningful, illustrating how technological mediation, if not supported by authentic social context, may encourage superficial rather than deep engagement.

P5 made a similar comment:

"If the online study group is not active, I also lose interest. Like, I don't want to be the only one posting. It's lonely. If nobody replies or likes my posts, I feel discouraged."

This reflects the importance of reciprocal interaction in sustaining motivation a key element of socially mediated learning that purely digital platforms often fail to provide.

#### *4.2.2. Material and Visual Motivation*

Digital reading environments also posed psychological challenges related to the lack of visual or tactile progress. P4 expressed a strong preference for physical books:

When I read a real book, I can flip pages and see how much I've read. It makes me feel I accomplished something. iBooks shows your progress and all, but reading on a phone never really feels like you're finishing a book. Your phone doesn't get any thinner as you read, you know?

Another participant, P1, echoed this concern:

"I like checking boxes. I wish the app showed me, like, a big progress bar or gave me a certificate when I finished something. Right now, it's just a habit tracker... not enough."

This desire for tangible outcomes aligns with learners' need for feedback both visual and social. The lack of embodied cues in digital environments may undermine motivation, particularly when reading is self-directed. From an SCT lens, such cues can serve as material mediators that support learners' reflection on progress and goal-setting.

Interestingly, P6 tried to solve this by printing selected reading materials:

"Sometimes I print the TOEFL passages and write on them. It feels more real. Also, I keep them in a folder it makes me feel more serious."

His workaround demonstrates a learner-initiated effort to restore the sense of physicality missing in digital tools, reinforcing the need for more hybrid forms of mediation.

#### *4.2.3. Institutional Invisibility of Reading Practices*

Perhaps the most demotivating factor was the disconnect between MAER and formal academic assessment. As P3, a postgraduate exam candidate, described:

"I read a lot online... Previous test passages, long articles from foreign journals, but nobody cares. Teachers don't ask, classmates don't discuss. It's all about mock tests and word lists."

This disconnect created a sense of isolation and diminished the perceived value of extensive reading. P3's account reflects how institutional culture shapes what learners see as "worth doing." Despite his efforts, the lack of recognition discouraged deeper engagement:

"Sometimes I feel like, why bother? No one sees it. If I just memorize words and get the scores, that's enough."

P4 also felt this tension:

"Reading fiction in English is fun, but I feel guilty. Like I'm wasting time. My classmates are doing past papers. From the bottom of my heart, only doing exercises can improve my scores."

This internal conflict between personal interest and academic pressure illustrates a sociocultural contradiction: while MAER could enhance long-term language development, its invisibility within mainstream curricula limited learners' willingness to invest in it.

From the SCT perspective, the institutional failure to acknowledge MAER deprives learners of critical social validation, which is essential for internalizing learning behaviors as part of their academic identity.

#### *4.2.4. Emotional Fatigue and Social Comparison*

Some participants described emotional fatigue related to social comparison, especially in competitive environments. P5 recalled:

"In the group chat, some people posted long summaries every day. At first, I felt inspired, then I felt bad. Like, I'm not that hardworking. I skipped days. I felt behind."

Rather than motivation, this led to avoidance:

"Eventually I muted the group. It was too much pressure. Reading became stressful."

This reflects how the absence of supportive mediation in social settings can turn potential peer scaffolding into a source of anxiety. Social comparison, without constructive feedback, may inhibit rather than promote internalization.

#### *4.3. Theme 3: Signs of Internalization and Shifting Learning Identities*

Despite the obstacles, several participants showed clear signs of internalizing MAER behaviors and reconfiguring their learner identities. This internalization marked by increased autonomy, metacognitive awareness, and positive emotional attachment to reading illustrates the transformative potential of sustained engagement in the right sociocultural conditions.

##### *4.3.1. From External Prompt to Internal Drive*

A powerful indicator of internalization was the shift from being externally motivated to self-driven. P5 described this process vividly:

"At first, I joined the IELTS reading group because I made some friends when I searched the topic of preparation for IELTS on Xiaohongshu. They dragged me into the social forum. They taught me a lot of useful things, and I looked forward to discussing with them, but after a month, I found myself reading even when my friends weren't. And when there were beginners joining the forum, I could help them with their studies. It gave me confidence and a feeling of accomplishment."

She also began summarizing and reflecting on readings:

"I used to just skim and move on. Now I stop and think, 'What's the main idea?' I even write short reviews in my notebook. Not for anyone, just for me. I think the summary and reflection help me to recognize the structure of the article, especially when the article is much longer than those I read in CET-4 or CET-6."

This shift aligns with Vygotsky's idea of internalization, where socially mediated practices become internally regulated behaviors. P5's evolving motivation from social to personal demonstrates a change in agency and ownership of learning.

##### *4.3.2. Building Reading Routines through Mediation*

For P6, reading became part of a structured daily ritual:

"I used to watch Douyin at night. But then I set 8:30 to 9:00 as reading time. I deleted the social media apps that may hinder me from reading. Now, my body just knows. Like, I finish dinner, clean up, and boom reading mode."

He credited the app's simplicity and quick feedback for helping form the habit:

"I do one passage. It tells me my speed and score. I like that. It's small, but I feel I have improved."

Over time, the dependence on external cues faded:

"Now I installed the social media back but they won't kill my reading time. Reading's part of me now."

This progression from externally scaffolded behavior to self-sustained habit is a classic example of internalization in SCT. The tool acted as a temporary mediator, but the regulatory function was gradually transferred to the learner himself.

#### 4.3.3. Identity Shifts Through Reading Content

For P4, reading English fiction on iBooks was initially just a leisure activity. However, it eventually shaped her self-perception:

"In high school, I read only for exams. Now, when I read a chapter of Harry Potter in English, I feel different... Like I'm part of a bigger world. English is not only a subject but also a tool. I can actually READ, you know, it's different from doing reading comprehension exercises. I am touching the world with my own reading ability. Reading is not an exam skill; it is an ability instead."

She connected this feeling to a broader identity:

"Sometimes I imagine myself studying abroad. Not for a test, but because I enjoy reading English. It's a new side of me."

Her engagement shifted from task-based to identity-based. Although she still struggled with consistency, the emotional value she derived from reading was a sign of deeper internalization. She described rereading favorite chapters:

"I go back and read certain scenes again. Not to learn new words, just because I like the feeling. It's like... me time. When I read a part of the story I love, scenes from the movies pop into my head. Like when I rode the Forbidden Journey ride at Universal Studios random lines from the books just came to me out of nowhere! It's the same way beautiful views make old Tang poems I memorized as a kid suddenly float back up."

This shift from passive language learner to active participant in a global reading culture—signals a powerful transformation in how she defines herself as an English user.

#### 4.3.4. Peer Mediation and Emerging Leadership

P5 also experienced an identity shift through peer interaction. Initially a quiet member of a reading group, she gradually took on a more active role:

"At first, I just read what others shared. But then I started picking articles and posting them. Some people said thanks. That felt good."

After finishing IELTS practice tests, I would look for articles on the same topics as the new speaking questions from our group chat, usually from foreign magazines. Then I would share them with my study buddies. One time, a friend told me she actually used the material I shared during her real speaking test!

This emerging leadership role reflects the transformation from being mediated to becoming a mediator a key process in SCT development. P5 was no longer just a recipient of knowledge but an active contributor to a learning community.

**Table 3.** Thematic mapping of participant experiences.

Participant	Main App/Tool	SCT concept reflected	Highlighted behavior	Internalization status
P1	China daily	Mediation (Multimodal)	Reads and listens to news	Partial
P2	Shanbay Reading	ZPD (Lack of social support)	Swipes away reminders, low accountability	Weak
P3	Graduation prep website	Institutional mediation gap	Reads exam texts online, lacks formal recognition	Partial
P4	iBooks	Identity/mediation	Reads fiction irregularly, sees self as English reader	Emerging
P5	IELTS Bro	ZPD → Internalization	Started as a group follower, now posts independent reflections.	Strong
P6	TOEFL WeChat official account	Mediation → Self-regulation	Developed a consistent evening reading routine.	Strong

#### 4.4. Summary Table: Thematic Mapping of Participant Experiences

Drawing from the detailed thematic analysis above, this section synthesizes the unique MAER experiences of the six participants, highlighting the interplay between sociocultural affordances, perceived barriers, and evidence of internalization. Table 3 maps key dimensions of each learner's experience, demonstrating how mobile-assisted extensive reading intersected with their motivations, social environments, and identity development.

This mapping reveals that while some participants (e.g., P5, P6) moved toward autonomous and internalized reading practices through mediated routines and social reinforcement, others (e.g., P1, P2) struggled with shallow engagement due to lack of meaningful interaction, institutional recognition, or visible progress. Several learners also displayed dynamic shifts across these dimensions over time, suggesting that MAER engagement exists on a developmental continuum.

From this mapping, three developmental trajectories of MAER engagement emerge:

**Transitional Engagers (P5, P6):** These learners initially relied on external scaffolding such as group activities, app reminders, or structured routines but gradually showed signs of independent reading behavior. Their experiences reflect the transformative function of mediation within the Zone of Proximal Development (ZPD), culminating in partial or full internalization of reading practices.

**Surface Engagers (P1, P2, P3):** Despite having access to MAER tools, these participants did not activate socially meaningful mediation. Their engagement remained extrinsically driven or instrumental, with limited emotional investment. They struggled to transcend the surface level of app interaction, and their behaviors remained largely uninternalized.

**Self-driven Explorer (P4):** This participant engaged in reading driven by affective value and personal interest. Although lacking formal support or peer scaffolding, she demonstrated signs of internalized motivation and identity alignment. Her experience suggests that emotional connection and content resonance can also mediate long-term engagement.

These differences underscore that successful MAER engagement is not simply a function of tool availability, but depends critically on how tools are embedded within social, emotional, and institutional ecologies. As such, the value of SCT lies in its ability to interpret MAER behavior not as isolated acts of reading but as socially situated developmental processes.

#### 4.5. Analysis by Research Questions

*RQ1: How do Chinese non-English majors engage with MAER in their academic and social environments?*

The findings suggest that learners' engagement with MAER is multifaceted, deeply personal, and situated within both academic and everyday social contexts. These engagements are shaped not only by learners' language goals and reading preferences but also by the ways in which mobile tools mediate their access to texts, scaffold their attention, and embed reading into daily routines.

From a sociocultural perspective, learning is a mediated process, and in this study, mobile apps functioned as central mediational tools. For example, P1 leveraged the China Daily app's dual-mode input simultaneous text and audio as a means of reinforcing comprehension, especially in preparation for the CET-4 exam. This dual-channel mediation illustrates the tool's potential to serve as a "cognitive amplifier" (Vygotsky, 1978) where technology extends the learner's capacity beyond what could be achieved independently. Similarly, P2 used Shanbay Reading with the intention of building daily reading habits, but her usage was fragmented and prone to distraction, demonstrating that technical mediation alone does not guarantee meaningful activity unless socially supported.

Moreover, learners' reading activities varied widely in structure and purpose. P3, for instance, adopted a highly goal-oriented and exam-driven strategy, repeatedly engaging with test passages on the previous tests website. This reflects a case of strategic mediation where the learner reuses familiar content to deepen understanding. In contrast, P4's interest-driven engagement with fiction via iBooks lacked routine, external guidance, or evaluative feedback

making her reading sporadic and emotionally driven rather than developmental. These contrasts reflect how the same tool (Mobile reading platforms) can support different forms of literacy development depending on the learner's activity system and internal goals.

These patterns resonate with the SCT view that tools acquire educational value only when embedded within meaningful social activity systems. Learners like P5 and P6, who used IELTS Bro and TOEFL-related mini-programs respectively, not only accessed materials through these tools but also activated social features (e.g., online forums). Their MAER behaviors illustrate more integrated systems of practice, where reading is not isolated but part of a mediated, goal-directed routine. Therefore, MAER engagement is best understood not simply as a matter of app use but as a socially and culturally situated practice shaped by learners' personal trajectories, mediated goals, and the degree of interaction their environments afford.

*RQ2: What sociocultural challenges do learners face in sustaining MAER engagement?*

Despite the technical richness of the tools used, many learners faced significant sociocultural barriers in sustaining consistent MAER engagement. One recurring issue was the lack of human-mediated support, which SCT considers essential for learning within the ZPD. While tools like Shanbay and IELTS Bro offered embedded scaffolds such as vocabulary lists, reminders, and text glossaries these were not always sufficient to drive consistent engagement when social interaction or external guidance was missing.

For example, P2 admitted to often ignoring app reminders and feeling easily distracted during reading. This reflects the limitations of self-regulation in environments that lack structured social reinforcement. P3, who relied heavily on a technically robust exam prep platform, reported feeling disconnected and unsupported, suggesting that the absence of peer or teacher interaction undermined her ability to maintain reading motivation. Even P4, whose reading was self-motivated, acknowledged skipping days due to mood or lack of pressure again emphasizing the role of external social structures in maintaining discipline.

These accounts highlight a key SCT principle: learning does not occur in isolation but is situated within broader social systems. The absence of institutional support such as curricular integration of MAER, teacher facilitation, or peer feedback left many learners operating outside their ZPD, forced to self-direct their learning without adequate scaffolding. P3's frustration about the university's lack of support for sustained reading is especially telling; it reveals a structural issue where MAER is not institutionalized as a legitimate academic practice, leaving learners without access to meaningful engagement zones.

Thus, while learners had access to sophisticated tools, the lack of supportive environments significantly constrained their ability to develop consistent MAER habits. The implication is that for mobile reading to become a sustainable practice, it must be embedded in social learning networks where both peers and educators co-construct the reading process.

*RQ3: What types of support peer, teacher, or technological do students perceive as helpful?*

The findings underscore that support within the ZPD, whether from peers, teachers, or intelligent tools is central to effective MAER engagement. Participants responded positively to scaffolding systems that provided structure, encouragement, and a sense of shared accountability. Three broad forms of support emerged: teacher-mediated scaffolding, peer-mediated scaffolding, and tool-embedded scaffolding.

Teacher-mediated scaffolding was evident in P6's experience preparing for the TOEFL. Her teacher assigned weekly reading tasks, required screenshot submissions, and provided follow-up feedback—effectively converting an individual activity into a socially accountable routine. This kind of structured external regulation helped the learner internalize reading behaviors, moving toward autonomy over time. Peer-mediated scaffolding, as seen in P5's participation in the IELTS Bro forum and daily check-in group, created a sense of belonging and motivational momentum. Sharing reading progress and exchanging vocabulary with peers added a social-emotional layer that helped maintain persistence.

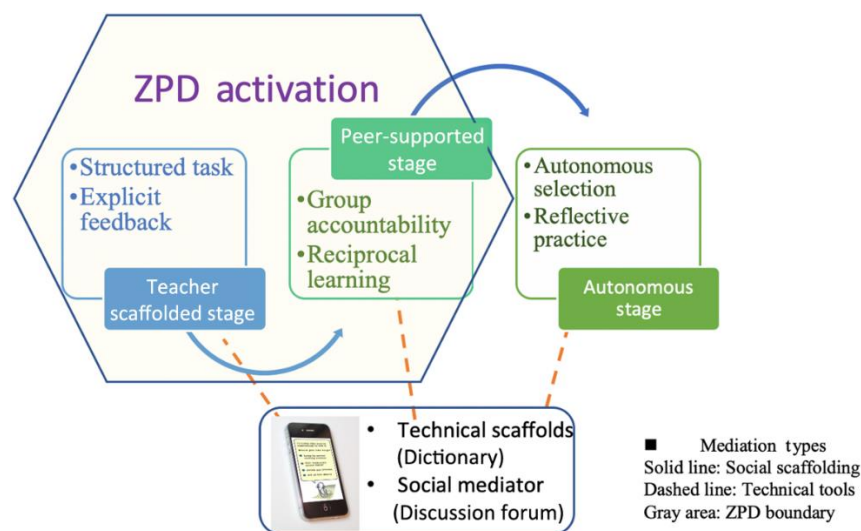
Tool-embedded scaffolds also played a role, though their effectiveness varied. Shanbay's spaced repetition scheduler and vocabulary notebooks helped P2 and P5 retain new words, but without social reinforcement or reflective prompts, the tools operated more like reminders than developmental guides. In some cases, such as P3's experience, even robust tools could not substitute for meaningful human interaction, pointing to the limitations of purely technical mediation.

Drawing on these insights, Table 4 summarizes the types of scaffolds observed in this study and aligns them with SCT concepts and instructional implications.

**Table 4.** Typology of MAER scaffolds.

Scaffold type	Example from data	SCT concept	Design implication
Teacher-mediated	Weekly screenshot tasks	ZPD boundary setting	Build assignment templates
Peer-mediated	IELTS Bro forums	Collective scaffolding	Add social annotation
Tool-embedded	Vocabulary schedulers	Technical mediation	Adaptive review algorithms

These scaffold types support the idea that MAER engagement follows a developmental progression, which can be modeled in three stages: (1) externally guided, (2) co-regulated, and (3) self-regulated. As shown in Figure 1 (*MAER Engagement Progression Model*), learners ideally move from external scaffolding (via teacher or peer support) toward increasingly autonomous mobile reading practices. This trajectory reflects (Vygotsky, 1978) notion of internalization, where higher mental functions originate in social interaction and are later transformed into individual competence.



**Figure 1.** MAER engagement progression model.

In conclusion, this study demonstrates that successful engagement with mobile-assisted extensive reading (MAER) among Chinese non-English majors extends far beyond mere access to mobile technologies or digital content. Instead, it is a complex, socioculturally mediated process in which the alignment of learners' individual goals, the affordances of technological tools, and the presence of supportive social structures all play a critical role. Learners are more likely to persist in MAER when they are situated within socially meaningful activity systems that offer scaffolding whether through peer collaboration, teacher guidance, or intelligently designed app features. Without such mediation, even the most advanced tools risk becoming underused or abandoned. Therefore, sustainable MAER practice requires educators and developers to move beyond functional design toward holistic, context-sensitive interventions that integrate technical and human support. Recognizing and actively designing for these sociocultural dynamics can significantly enhance learners' motivation, consistency, and eventual internalization of reading strategies transforming mobile reading from a passive habit into an empowered literacy practice.



## 5. CONCLUSION

This study reinforces the SCT perspective that internalization requires more than motivation—it depends on an ecology of tools, social interaction, and institutional support that enables learners to transition from externally guided to self-regulated reading. The findings demonstrate that MAER is not simply a personal or technical endeavor but a socially situated practice shaped by learners' goals, available scaffolding, and the broader educational environment. While mobile technologies offer flexible and multimodal access to English texts, their impact hinges on integration into meaningful social routines supported by peers, teachers, and app-based features.

Theoretically, this study extends the application of Sociocultural Theory to mobile language learning by illustrating how mediation, the zone of proximal development (ZPD), and internalization function in real-world MAER contexts. Practically, it calls on educators and designers to move beyond content delivery and prioritize the sociocultural supports that sustain engagement and foster learner autonomy.

Future research should examine more diverse learner populations, adopt longitudinal approaches, and explore cross-platform interactions to better understand how mobile reading is shaped not only by digital tools but also by the people, practices, and systems that surround them.

**Funding:** This study received no specific financial support.

**Institutional Review Board Statement:** The study involved minimal risk and adhered to ethical guidelines for social science fieldwork. Formal approval from an Institutional Review Board was not required under the policies of Scientific Research Office of the Department of Teaching English as a Foreign Language, Hebei University of Economics and Business, China. Informed verbal consent was obtained from all participants, and all data were anonymized to ensure participant confidentiality."

**Transparency:** The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

**Competing Interests:** The authors declare that they have no competing interests.

**Authors' Contributions:** All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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